

# Thoughts about Asian Collaboration

RIKEN/RBRC

Itaru Nakagawa

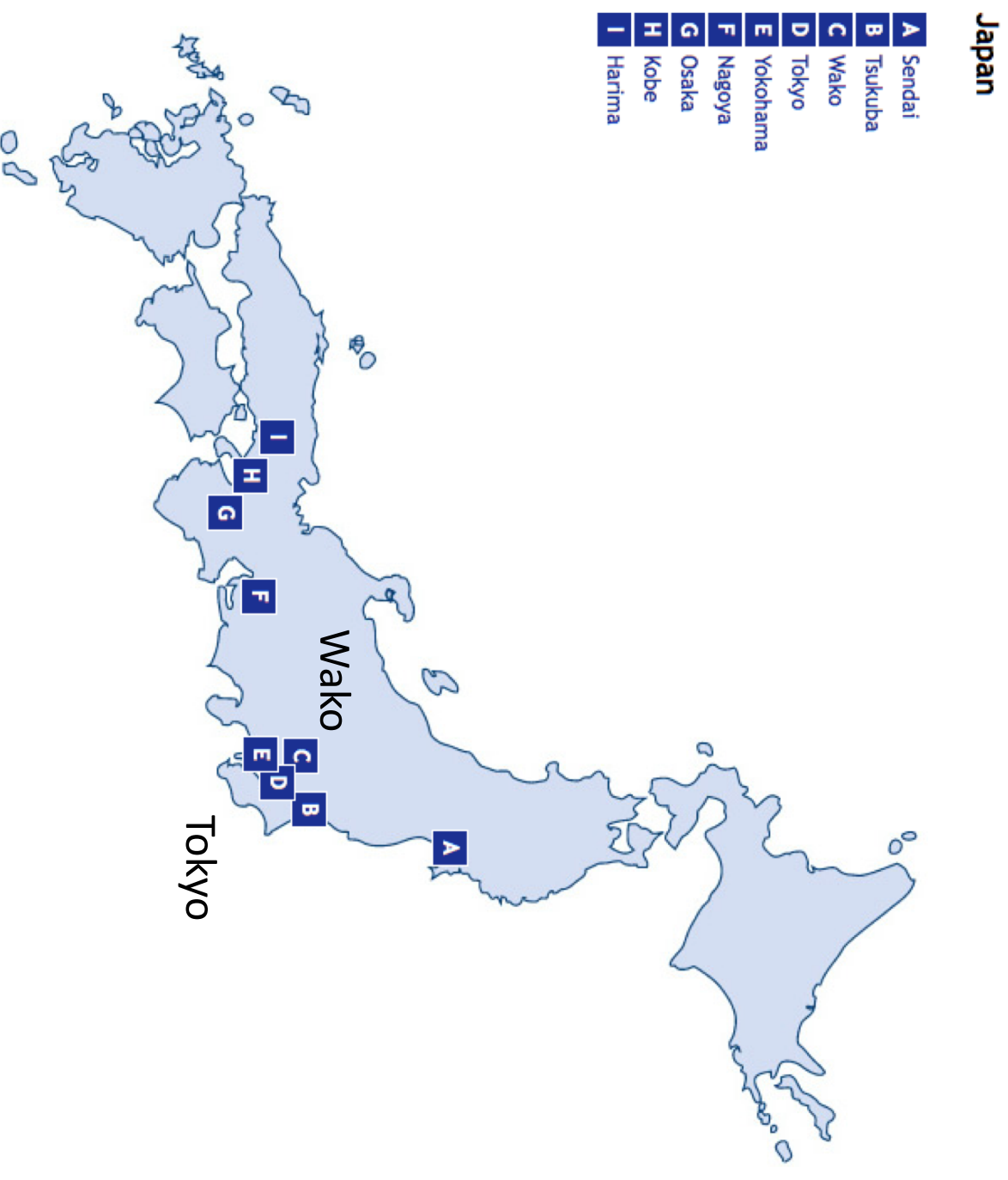
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# What is RIKEN?

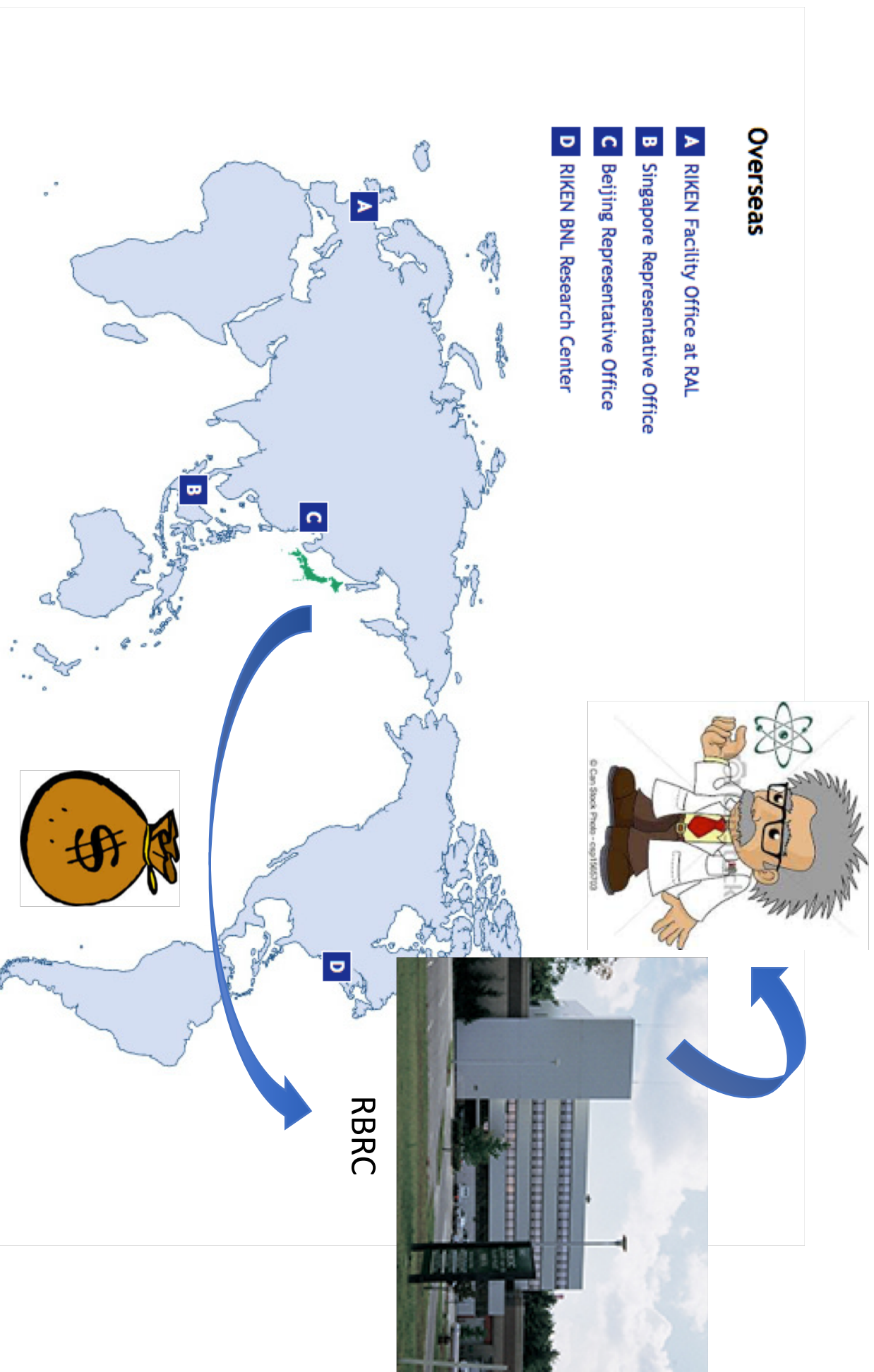
理	R	리	Physic &
化	KA	카	Chemistry
学	GAKU	가쿠	
研	KEN	켄	Research
究	KYU	큐	
所	SYO	쇼	Institute

These days, also for life science (a lot).

# Location of RIKEN



# How PHENIX Research has been Supported





# RIKEN BNL Research Center (RBRC)



**RBRC**  
RIKEN BNL Research Center

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## RBRC Research Groups



Group Leader: **Dmitri Kharzeev**

### Theory Group

RBRC theorists interact closely with members of the BNL Nuclear Theory, High Energy Theory, and Lattice Gauge Theory Groups as well as with visiting senior theorists from universities such as Columbia and Stony Brook. The broad range of QCD related research conducted by the Theory Group includes RHIC heavy ion physics, the quark gluon plasma, the color glass condensate, and hard QCD/spin physics.

We are developing a new initiative on Chiral Matter—an interdisciplinary effort to understand the novel

information accessible in nature



Group Leader: **Taku Izubuchi**

### Computing Group

The RBRC Computing Group has close interactions with BNL High Energy Theory Groups, Nuclear Theory, and Lattice Gauge Theory Groups. They collaborate closely with Japanese, U.S., U.K. universities, and laboratories with visiting scientists from universities such as Columbia, Connecticut, and Nagoya University.

The main mission of the group is to solve the dynamics of QCD from first principle lattice simulations and provide important numerical

information accessible in innovative



Group Leader: **Yasuyuki Akiba**

### Experimental Group

The Experimental Group studies the spin structure of the proton via polarized p+p collisions at RHIC and the properties of quark gluon plasma produced in heavy ion collisions at RHIC. The Group also develops various detectors for PHENIX experiment as well as polarimeters for RHIC.

### Experimental Group Members

**Y. Akiba**, Group Leader

**Research Associates**

**Fellows**

# Radiation Laboratory

## Radiation Laboratory

	Name	Other Affiliations	Activity	@
Chief Scientist	<a href="#">Hidetaka Enyo</a>	Director, Nishina Center	PHENIX, JPARC	W
Vice Chief Scientist	Takashi Ichihara	RBRC, RIBF computing team leader	PHENIX, RIB	W
	Yasuyuki Akiba	RBRC Exp. Group leader	PHENIX	B
Scientist	Yasushi Watanabe	RBRC, RIBF user liaison team sub-leader	PHENIX, RIB	W
	Yoshie Ohtake		Neutron Optics	W
	Yuji Goto		PHENIX	W
	Iitaru Nakagawa		PHENIX	W
	Satoshi Yokkaichi		PHENIX, JPARC	W
	<b>Ralf Seidl</b>		PHENIX	W
Collaborating Scientist	Naohito Saito	KEK	PHENIX	
	Kazuyoshi Kurita	Rikkyo-U	PHENIX	
	Kiyoshi Tanida	Korea-U	PHENIX	
	Tsutomu Mibe	KEK	PHENIX	
Foreign Postdoctoral Researcher	Stephen Baumgart		PHENIX	W
Special Postdoctoral Researcher	Kazuza Aoki		PHENIX/JPARC	W
	<b>Yoshichika Seki</b>		Neutron	W
Postdoctoral Researcher	Tomooki Nakamura		PHENIX	W
	Yoshinori Fukao		PHENIX	W
	Yohhei Nakatsugawa		LEPS	W
	<b>Takashi Hachiya</b>		PHENIX	W
	<b>Yoshimitsu Imazu</b>	Starting from July	PHENIX	W
	<b>Motohiro Nishitani</b>		Electron gun	W
Entrustee	Katsuya Hirota	JNOP	Neutron/STJ	W
Technical Staff	Junpei Kanaya		PHENIX	W
Senior Visiting Scientist	<b>Tomo Nagae</b>	Kyoto-U	JPARC	
	Toshiaki Shibata	Titech	PHENIX	
	Hirohiko Shimizu	KEK	Neutron/STJ	

## RIKEN-BNL Research Center

Directors			
	Name	Other Affiliation	@
Center Director	Nick Samios	BNL	B
Director Emeritus	T.D. Lee	Columbia U.	B
Associate Director			W

### Experiment

	Name	Other Affiliation
Group Leader	Yasuyuki Akiba	RIKEN
Deputy Group Leader	Abhay L. Deshpande	SUNY
RHIC Fellow	David Kawaill	Yale
Fellow	Kensuke Okada	
	Stefan Bathe	
Research Associate	Kieran Boyle	
RIKEN Special Postdoctoral Researcher	<b>Kohei Shoji</b>	
Students(JRA)	Akihisa Takahara	CNS, U-tokyo
Collaborating Scientist	Akio Ogawa	BNL
	Zheng Li	BNL
	Alexander Bazilevsky	BNL
	<b>Kotaro Kondo</b>	BNL-CAD
	Masahiro Okamura	BNL-CAD
	Andy	BNL-CAD

**Theory ( Japanese member)**  
Other Non-Japanese members can be found [here](#)

	Name	Other Affiliation
Group Leader	L. McLerran	BNL
Deputy Group Leader	Anthony	BNL

# Radiation Laboratory

## Radiation Laboratory

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	Yoshie Ohtake		Neutron Optics	W
	Yuji Goto		PHENIX	W
	Iitaru Nakagawa		PHENIX	W
	Satoshi Yokkaichi		PHENIX, JPARC	W
	<b>Ralf Seidl</b>		PHENIX	W
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Foreign Postdoctoral Researcher	Stephen Baumgart			W
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	<b>Yoshichika Seki</b>			W
Postdoctoral Researcher	Tomooki Nakamura			W
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	Yohsei Nakatsugawa			W
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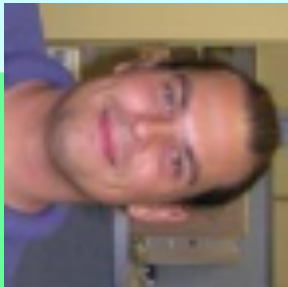
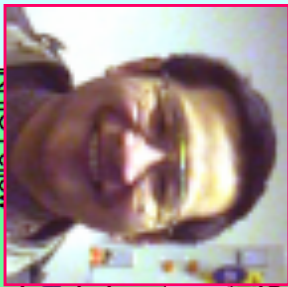
## EN-BNL Research Center

### Directors

	Name	Other Affiliation	@
Center Director	Nick Samios	BNL	B
Deputy Director	T.D. Lee	Columbia U.	B
Director			W

### Experiment

	Name	Other Affiliation
	Yasuyuki Akiba	RIKEN
	Abhay L. Deshpande	SUNY
	David Kewall	Yale
	Kensuke Okada	
Fellow	Stefan Bathe	



Postdoctoral Researcher	Masahiro Okamura	BNL-CAD
	Andy	BNL-CAD

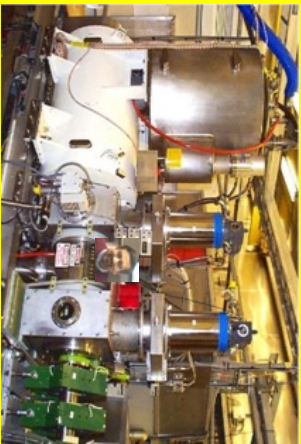
### Theory ( Japanese member)

Other Non-Japanese members can be found [here](#)

	Name	Other Affiliation
Group Leader	L. McLerran	BNL
Deputy Group Leader	Anthony	BNL

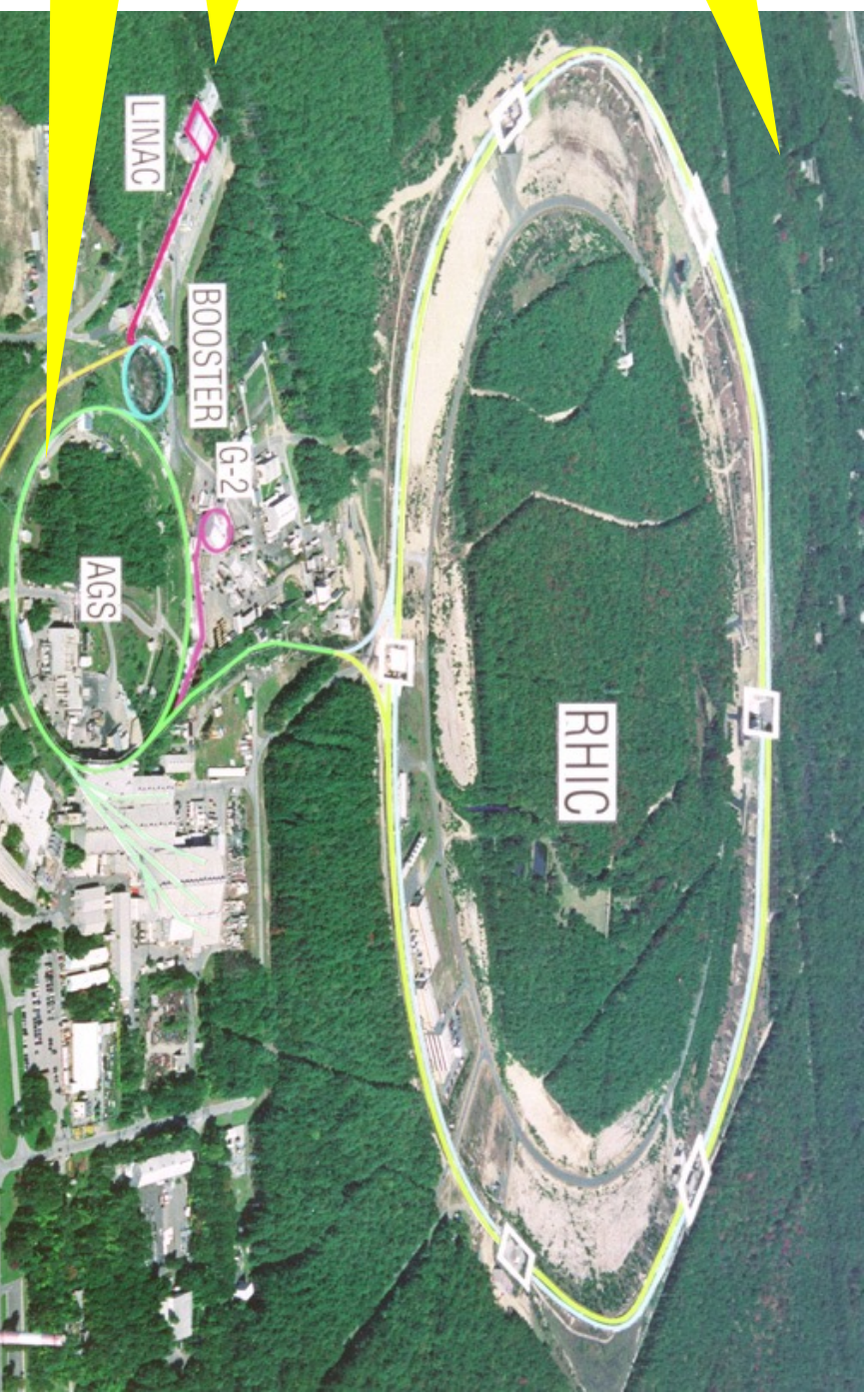


# Physics Idea The first spin collider



## RIKEN's strategy for RHIC, 1995~

Resource focusing on Original idea



### Wako: Analysis center R&D center



### RIKEN-BNL Center: On-site base + Theory

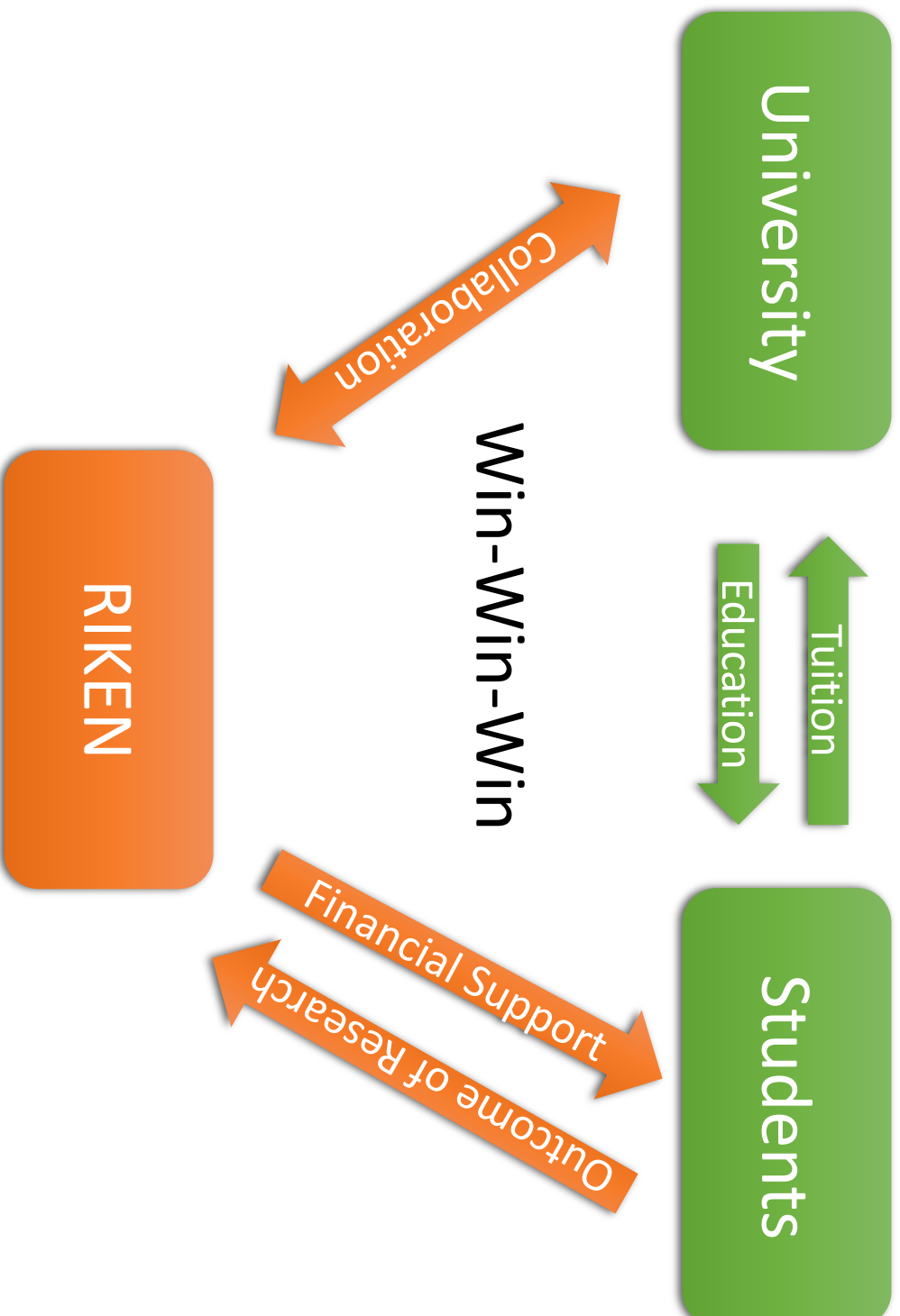


~25 Exp



~20 theorists

# Relation to Universities



**We Desperately Need Young Manpower  
It is YOU.**

**We Desperately Need Strong Participation.  
It is YOU.**

RIKEN is Research Lab (not university),  
but has a system to support students financially

You at	Under Grad	Master Student	Doctor Student	OD (yet to complete)	Postdoc	Comment
Government JSPS	none	none	DC fellow For Japanese	Non	PD fellow	also Foreigners PD program
University	Scholar ship	Scholar Ship Teaching Assistant Research Assistant			none	Not many posts available
RIKEN Lab. operation	Trainee	Trainee Student PT	Trainee Student PT	Research Assistant	PD Researcher	For anybody but cheap
			Junior Research Associate	Special Doctoral Fellow		For Japanese
RIKEN Fellow Program			International Program Associates		Foreign Postdoctoral Fellow	For Non Japanese





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[Community](#)

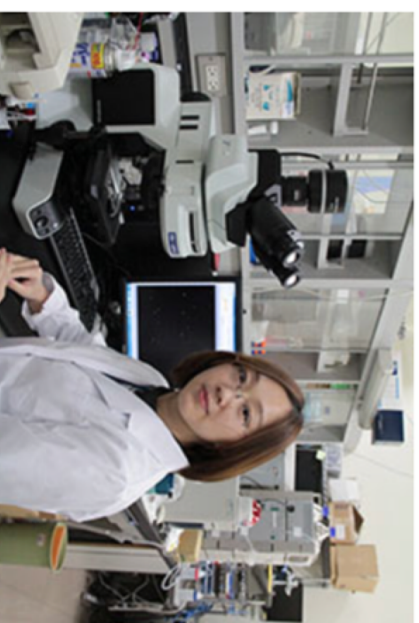
# Careers



[Home](#) [> Careers](#) [> Programs for Junior Scientists](#) [>](#)

## International Program Associate

An International Program Associate (IPA) is a non-Japanese doctoral candidate attending a Japanese or overseas graduate school participating in RIKEN's joint graduate school program. IPAs conduct research at RIKEN under the supervision of RIKEN scientists as part of work toward obtaining a PhD. RIKEN's joint graduate school program is based on agreements with a number of Japanese and overseas universities and aims to identify and foster talented young scientists capable of contributing to the advancement of science for the global community.



## RIKEN's Educational Partnerships

### Japanese Universities

- Tokyo Institute of Technology
- The University of Tokyo (Graduate School of Frontier Science)

#### Careers

##### Job Opportunities



##### Programs for Junior Scientists



Special Postdoctoral  
Researchers Program



Foreign Postdoctoral Researcher  
program



Junior Research Associate  
program



International Program Associate

RIKEN Hakubi Fellows Program



Working at RIKEN



Researchers' Perspectives



RIKEN People





# IPA : General Information

- Applicants should be (or to be) in Ph.D course (not Master course).
- Call for application issues twice a year (April and October).
- Long term (3years) and Short term (1 year).

# IPA : Compensation (Financial Supports )

- Airfare (1 round-trip ticket to Japan)
- Living allowance (5,200 JPY/day ~ 150,000 JPY/month)
- Free on-campus housing, or payment of actual amount of rent for off-campus apartment, up to a maximum of 70,000 JPY/month
- Payment of accident insurance premium

100 JPY ~ 台灣25元 ~ US\$1

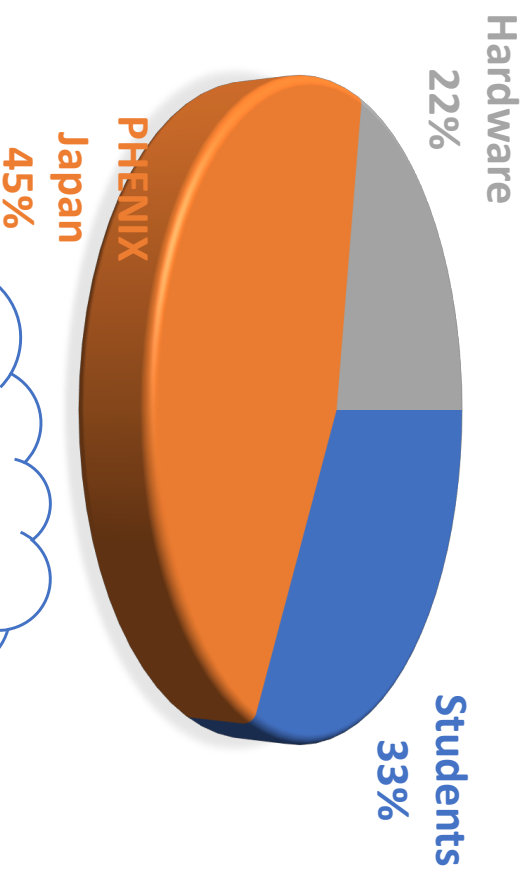
# Japan-Korea PHENIX Collaboration Meeting

	Location	Country	Year
0 <sup>th</sup>	Seoul National University	Korea	September, 2010
1 <sup>st</sup>	Ewha Woman's University	Korea	November, 2012
2 <sup>nd</sup>	SungKyunKwan University	Korea	November, 2013
3 <sup>rd</sup>	RIKEN	Japan	November, 2014
4 <sup>th</sup>	Hanyang University	Korea	October, 2015



# Outcome of the Meeting

## BREAKDOWN OF TOPICS



Reporting progress of the analysis

Any hardware projects we can work together?

My student is making good progress

My senior works in a cool project!

One of the talks can be listed in my CV



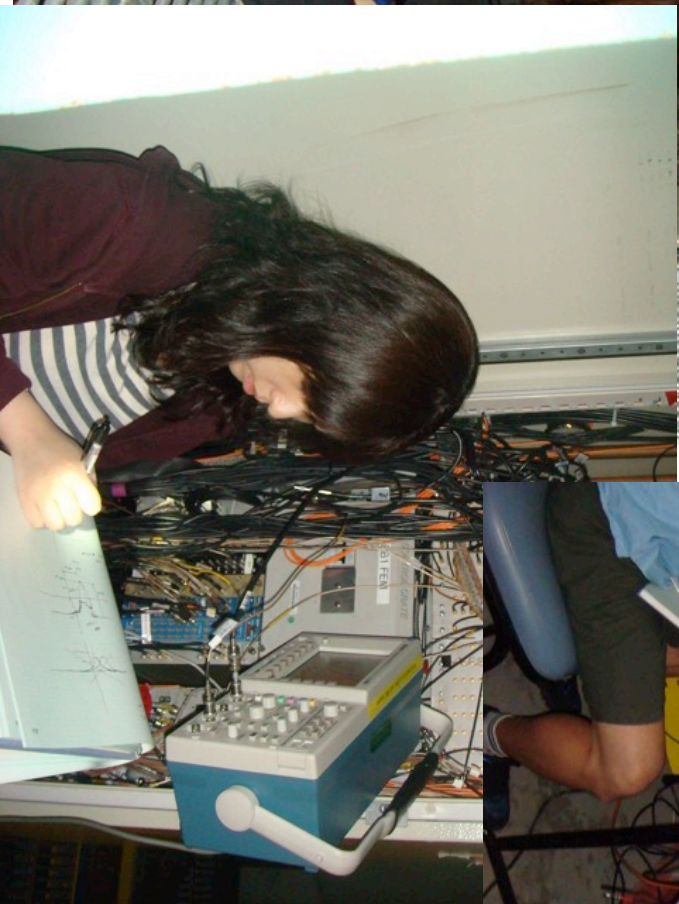
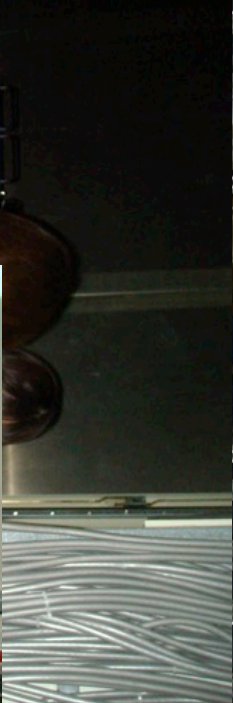
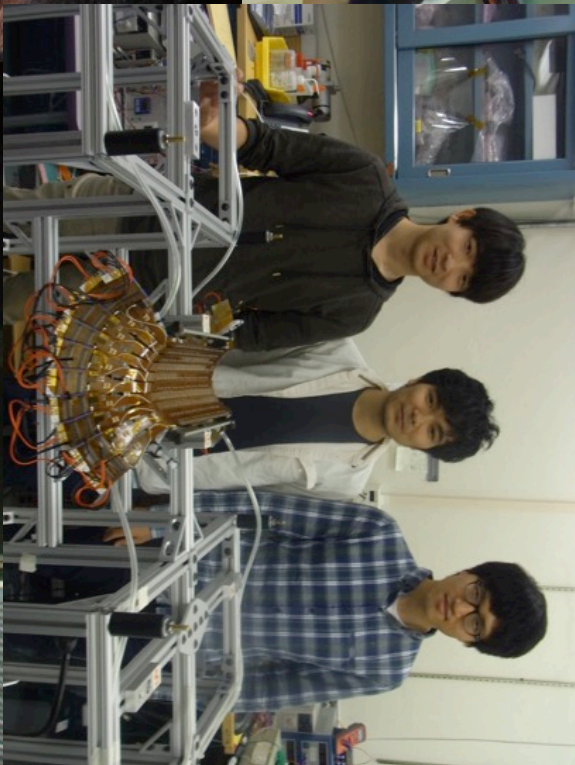
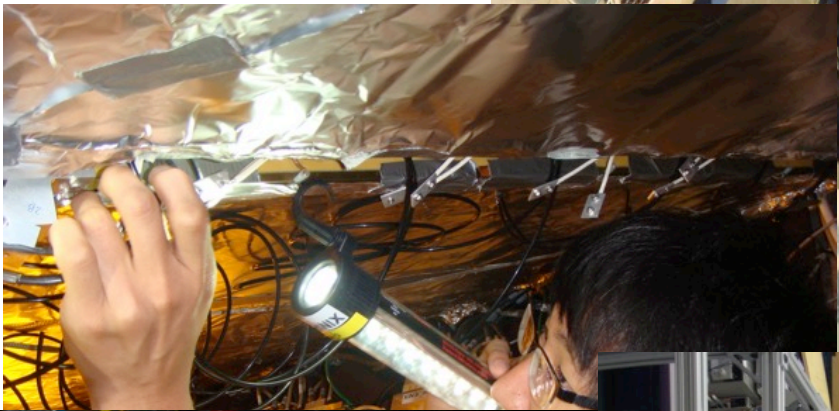
# IPA Students @ Radiation Lab.

Student	Research Topic	Mentor @ RIKEN
Sagnhwa Park (SNU)	Sea Quark Polarization thru Run13 W->mu Longitudinal Single Spin Asymmetry	Itaru Nakagawa
Inseok Yoon (SNU)	Gluon Polarization thru Run13/12/11 Central Arm p0 Longitudinal Double Spin Asymmetry	Yuji Goto
Taejong Moon (Yonsei Univ.)	Gluon Polarization through Run13 Central $\pi^{+/-}$ Longitudinal Double Spin Asymmetry	Yasuyuki Akiba
Chong Kim (Korea Univ.)	Sea Quark Polarization thru Run13 W->mu Longitudinal Single Spin Asymmetry	Ralf Seidl
Minjung Kim (SNU)	Forward Neutron Asymmetry $A_N$ for Run15 pA	Itaru Nakagawa
SeYoung Han (Ewha Univ.)	Search for mini-QGP in Small Colliding System using Run15 High Multiplicity Events	Itaru Nakagawa
JaehHee Yoo (Korea Univ.)	Gluon Polarization through Run15 pA Central $\pi^{+/-}$ Longitudinal Double Spin Asymmetry	Itaru Nakagawa
Junsang Park	Very forward Transverse Single Spin Asymmetry of Neutron Using <b>RHICf</b> Detector at STAR	Yuji Goto
Minho Kim (Korea Univ.)	Very forward Transverse Single Spin Asymmetry of $\pi^0$ Using <b>RHICf</b> Detector at STAR	Itaru Nakagawa
Benard Mulilo (Korea Univ.)	$p_T$ dependence of Forward Neutron Asymmetry $A_N$ for Run15 pA	Itaru Nakagawa

# Korean Students in Radiation Lab.

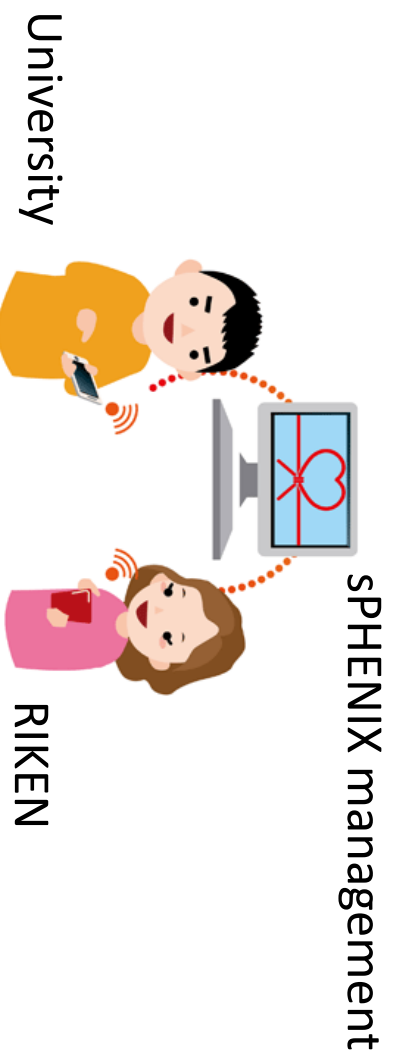






# Lessons

- Local meeting in Asia at least every year
  - Not everybody can travel to US
  - Continuity develops the flux of interest to the project
- Let students to present their progress.
  - Best way to attract junior students to the project
- Keep introducing projects each other
  - Present Ph.D theme
  - May find a project can be collaborated





# SPHENIX promotion to Asian society

## • Asian **N**uclear **P**hysics **A**ssociation **ANPhA**

- Launched in **2009**
- **Central organization representing Nuclear Physics in Asia Pacific.**

## • **Eight membership countries and regions**

- **Australia, China, India, Japan, Korea, Mongolia, Taiwan, and Vietnam**

## • **Objectives**

- To strengthen “**Collaboration**” among Asian nuclear research scientists through the promotion of nuclear physics and its transdisciplinary and applications
  - To promote “**Education**” in Asian nuclear science through mutual exchange and coordination
  - To **coordinate** among Asian nuclear scientists by actively utilizing **existing research facilities**
  - To **discuss future planning** of nuclear science facilities and instrumentation in Asia
- **ANPhA plays the role of Division of Nuclear Physics of AAPPs.**
    - **ANPhA** Chair should be the chair of **DNP-AAPPs**.

# ANPhA/DNP-AAPPS: Current EXCO Officers

- Chair

**Kazuhiro Tanaka (2017-2019)**  
(KEK)



- Vice Chair

**Weiping Liu**  
(CIAE, China)



**Tohru Motobayashi**

(RIKEN, Japan)



**Anthony Thomas**

(Univ. of Adelaide, Australia)



- Secretary

**Hirokazu Tamura**

(Tohoku Univ)



# ANPhA/DNP-AAPPS:

## Executive Committee (EXCO)

- **Australia**  
Anthony Thomas (Univ. of Adelaide)
  - **China**  
Furong Xu (Peking Univ.)  
Guoqing Xiao (IMP)  
Weiping Liu (CIAE)  
Yugang Ma (SINAP)
  - **India**  
**Alok Saxena (BARC)**  
**Dinakar Kanjilal (IUAC)\***  
**Amitava Roy (VECC)**
  - **Japan**  
Kazuhiro Tanaka (KEK)  
Atsushi Hosaka (RCNP, Osaka Univ.)  
Tohru Motobayashi (RIKEN)  
Hirokazu Tamura (Tohoku Univ.)
  - **Korea**  
Myeong-Ki Cheoun (Soongsil Univ.)  
Byungsik Hong (Korea Univ.)  
Kevin Insik Hahn (Ewha Womans Univ.)
  - **Mongolia**  
TBA
  - **Taiwan**  
Henry Tsz-king Wong (Academia Sinica)
  - **Vietnam**  
**Phan Viet Cuong (Director of the nuclear physics center of IOP, Hanoi)**
- As of September 24, 2017**  
**\* To be confirmed**

# ANPhA 2019 in Jeju, Korea

- Focused in low energy nuclear physics in the past
- We proposed to extend the scope to high energy field this year to be held in June and accepted.
- One SPHENIX/EIC talk in ANPhA Symposium
- Plus half a day dedicated session is approved to cover:
  1. EIC
  2. HIAF-EIC
  3. SPHENIX
  4. J-PARC-HI
  5. Theory1
  6. Theory2